

**INFLUENCE OF SOIL MOISTURE CONTENT AND FERTILIZER
POTASSIUM ON THE GROWTH AND YIELD OF COWPEA
(*Vigna unguiculata*) IN SANDY REGOSOL**



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ABSTRACT

Cowpea is grown in a wide range of environments, and drought is considered as the single most devastating environmental stress, which decreases crop productivity more than any other environmental stress. Lack of adequate soil moisture affects both the vegetative and reproductive growth of legumes and leads to significant yield loss. Potassium fertilizer mitigates the impact of water stress in plants. A study was conducted from July to September 2018 to investigate the effect of four rates of fertilizer potassium (MOP) including recommended level (75Kg/ha), 125% of recommended level, 150% of recommended level, 175% of recommended level with two different soil moisture conditions as optimal and sub-optimal soil moistures on growth and yield of cowpea. These 8 treatments replicated three times in a Completely Randomized Design (CRD) in a factorial manner. Soil potassium content, plant potassium content, growth parameters and yield of cowpea were recorded. The data were statistically analyzed using SAS and difference between treatment means was compared using Duncan's Multiple Range Test (DMRT). The roots of cowpea showed a greater response to potassium fertilizer under suboptimal soil moisture. Although differences were observed in the responses of the vegetative growth of cowpea to moisture and potassium, in overall terms potassium promoted growth of cowpea when subject to suboptimal soil moisture. Among all applications 175% of recommended potassium level of cowpea proved to be the best to increase the growth components and yield at both moisture conditions in sandy regosol soil. The results of this study suggested that the application of potassium fertilizer can be considered as significant factor in overcoming soil moisture stress in cowpea.

Key words: Cowpea, moisture stress, potassium, soil moisture, vegetative growth, yield.

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